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Date November 17, 2006

Number of pages (including cover): 47

## F A X C O V E R

**To:** OFFICE OF PETITIONS (PATENT), Commissioner for Patents at the U.S. Patent and Trademark Office

**FAX NO.:** 1-571-273-8300

**Applicants:** Kim Ngoc Vu

**Our File #** C1138-700110

**Serial No.:** 10/650,102

**Confirmation No.:** 6429

**Filing Date:** August 26, 2003

**Title:** MODULAR SUBSTRATE GAS PANEL HAVING MANIFOLD CONNECTIONS  
IN A COMMON PLANE

**From** Robert V. Donahoe, Reg. No. 46,667

**Direct dial** 617-395-7044

**FAX NO.** 617-395-7070

ORIGINAL DOCUMENTS SENT:  1st Class Mail  Overnight Mail  Air Mail  Not Sent

## CERTIFICATE OF FACSIMILE TRANSMISSION UNDER 37 C.F.R. 1.8(a)

The undersigned hereby certifies that a copy of the following documents in the above-referenced application (total 13 pages including facsimile cover sheet) are being facsimile transmitted to the Office of Petitions (Patent), Commissioner for Patents at the U.S. Patent and Trademark Office, at the number (571) 273-8300, on November 17, 2006.

- Petition to Withdraw the Finality of a Final Rejection under 37 CFR 1.181(a) (7 pages);
- Attachment A;
- Attachment B;
- Attachment C;
- Attachment D;
- Attachment E; and
- Transmittal Letter (1 page).

A handwritten signature in black ink, appearing to read 'Fareesha Ali'.

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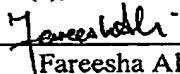
Docket No.: C1138-700110

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Kim Ngoc Vu  
 Serial No: 10/650,102  
 Confirmation No: 6459  
 Filed: August 26, 2003  
 For: MODULAR SUBSTRATE GAS PANEL HAVING  
 MANIFOLD CONNECTIONS IN A COMMON PLANE  
 Examiner: Fox, John C.  
 Art Unit: 3753

CERTIFICATE OF FACSIMILE TRANSMISSION 37 C.F.R. § 1.8(a)

The undersigned hereby certifies that this document is being transmitted via facsimile to FAX number (571) 273-8300 Office of Petitions (Patent), at the U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450, in accordance with 37 C.F.R. § 1.6(d), on November 17, 2006.

  
 Fareesha Ali

Office of Petitions (Patent)  
 Commissioner for Patents  
 P.O. Box 1450  
 Alexandria, VA 22313-1450

Sir:

Transmitted herewith are the following documents:

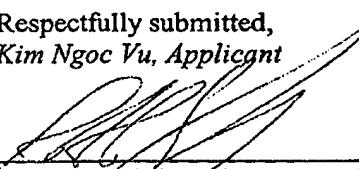
- Petition to Withdraw the Finality of a Final Rejection Under 37 CFR 1.181(a);
- Attachment A;
- Attachment B;
- Attachment C;
- Attachment D; and
- Attachment E;

If the enclosed papers are considered incomplete, the Mail Room and/or the Application Branch is respectfully requested to contact the undersigned at (617) 395-7000.

A check is not enclosed. If a fee is required, the Commissioner is hereby authorized to charge Deposit Account No. 50/2762, Ref. No. C1138-700110. A duplicate of this sheet is enclosed.

Respectfully submitted,  
*Kim Ngoc Vu, Applicant*

By:

  
 Robert A. Skrivanek, Jr., Reg. No. 41,316  
 Robert V. Donahoe, Reg. No. 46,667  
 LOWRIE, LANDO & ANASTASI, LLP  
 Riverfront Office Park  
 One Main Street  
 Cambridge, MA 02142  
 Tel: (617) 395-7000

Date: November 17, 2006

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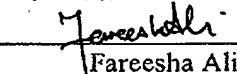
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Fareesha Ali

Office of Petitions (Patent)  
 Commissioner for Patents  
 P.O. Box 1450  
 Alexandria, VA 22313-1450

Sir:

Transmitted herewith are the following documents:

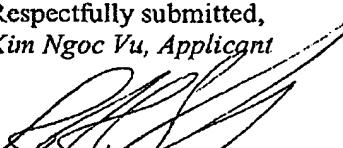
- Petition to Withdraw the Finality of a Final Rejection Under 37 CFR 1.181(a);
- Attachment A;
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By:



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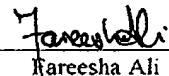
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Examiner: Fox, John C.  
Art Unit: 3753

CERTIFICATE OF FACSIMILE TRANSMISSION 37 C.F.R. § 1.8(a)

The undersigned hereby certifies that this document is being transmitted via facsimile to FAX number (571) 273-8300 Office of Petitions (Patent), at the U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450, in accordance with 37 C.F.R. § 1.6(d), on November 17, 2006.

  
Rareesha Ali

Office of Petitions (Patent)  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

PETITION TO WITHDRAW THE FINALITY OF A FINAL REJECTION  
UNDER 37 CFR 1.181(a)

Sir:

Applicant respectfully requests reconsideration and withdrawal of the finality of the rejection of the claims in the Office Action mailed July 7, 2006. Applicant believes that the finality of the rejection is premature.

1. A prior final Office Action was mailed from the U.S. Patent and Trademark Office on March 1, 2006 concerning the above-referenced application (hereinafter "the prior final Office Action"). The prior final Office Action rejected then-pending independent claim 1 as well as a number of dependent claims. A copy of the prior final Office Action is included herewith as Attachment A.

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2. On June 1, 2006, Applicant mailed a RCE with an Amendment in response to the prior final Office Action. The Amendment includes an amendment to the sole independent claim, claim 1. A copy of the Amendment including a marked up version showing the amendments to claim 1 is included herewith as Attachment B.

3. On July 7, 2006, in reply to the RCE and Amendment filed on June 1, 2006, a first-action final Office Action was mailed from the U.S. Patent and Trademark Office finally-rejecting the amended independent claim 1 as well as other dependent claims. A copy of the first-action final Office Action mailed immediately after the filing of the RCE and Amendment is included herewith as Attachment C.

4. On October 5, 2006, Applicant mailed a Response to the first-action final Office Action. Applicant's Response includes detailed remarks explaining the reasons why the finality of the rejection was inappropriate. The Response also includes a request for reconsideration and withdrawal of the finality of the rejection. A copy of the Response is included herewith as Attachment D.

5. On October 31, 2006, in response to Applicant's October 5<sup>th</sup> Response, an Advisory Action issued which maintains the finality of the rejection. The Advisory Action asserts that "the grounds of the rejection are the statute and the references which are the same in the instant rejection as in the rejection of March 1, 2006 ... [t]he reference to another patent to show the level of skill in the art is not considered a new ground of rejection in that it is not required to make the rejection. In other words, the claims would have been properly rejected even if Ohmi '933 did not exist." A copy of the Advisory Action is included herewith as Attachment E.

6. The MPEP states that an action can only be made final in a first-action following a RCE if "all claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected

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on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114." See MPEP 706.07(b). (Emphasis added.)

7. Applicant respectfully asserts that finality of the present rejection is premature for at least two reasons: first, the claims presently pending are not drawn to "the same invention" claimed prior to entry of the submission under 37 CFR 1.114; and second, the grounds for the present rejection are different than the grounds of record before the mailing of the first-action final Office Action because the Examiner found it necessary to change the basis of an alleged *prima facie* case of obviousness by using an additional reference. Consequently, the finality of the instant rejection is premature and the rejection should be made non-final.

8. As an initial matter, claim 1 recites that the first fluid passageway associated with the substrate is "formed within the substrate body," whereas prior to this amendment, claim 1 recited that the first fluid passage "fluidly connects the first substrate port to the second substrate port" but did not include any further recitation concerning the location of the passageway. Similarly, claim 1 as amended also recites that the fluid passageway associated with the manifold is "formed within the manifold body." In addition, claim 1 as amended also recites that the channel formed in the first surface of the substrate body is "adapted to position the manifold within the channel." Prior to the amendment, claim 1 recited the channel was "adapted to position the manifold so that the first surface of the substrate body and the first surface of the manifold body are aligned in a common plane," but did not include any further recitation concerning the location of the manifold relative to the channel. The first-action final Office Action does not acknowledge or address the claim amendments at all.

9. Clearly, claim 1 as now pending is not drawn to "the same invention" as prior to entry of the submission under 37 CFR 1.114 (e.g., prior to entry of the Amendment). Although MPEP 706.07(b) does not define the term the "same invention," that term is defined in other contexts within the MPEP. For example, MPEP 804 describes that the statutory language of 35 U.S.C. §101 prohibits two patents from issuing on the "same invention" and

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terms this a "Statutory Double Patenting Rejection." In describing what constitutes the "same invention," the MPEP first states that the "same invention" means identical subject matter. MPEP 804(II)(A). Second, the MPEP offers a "reliable test" for double patenting under 35 U.S.C. §101. Id. That is, "whether a claim in the application could be literally infringed without literally infringing a corresponding claim in the patent." Id. As is manifestly obvious from the highlighted text of amended claim 1 above, amended claim 1 is not "identical" to claim 1 prior to entry of the submission under 37 CFR 1.114. Second, Applicant asserts that the claims pending at the time of the prior final Office Action could be literally infringed without literally infringing the claims pending at the time of the first-action final Office Action. Because the claims pending at the time of the first-action final Office Action are not directed to the "same invention" as those pending prior to the entry of the submission under 37 CFR 1.114, the first-action final Office Action is premature.

10. As one example, prior to entry of the Amendment, claim 1 could be literally infringed by a system for enabling a distribution of fluid that includes a substrate with a channel adapted to position the manifold in a location other than within the channel. After entry of Applicant's Amendment, however, claim 1 could not be literally infringed by the preceding structure because claim 1 now recites that channel is "adapted to position the manifold within the channel."

11. A "basic criteria" required to establish a *prima facie* case of obviousness is a suggestion or motivation to combine the references. MPEP 2142. Thus, to establish a *prima facie* case of obviousness, "the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Id. Proper grounds of rejection do not exist where the suggestion or motivation is not identified.

12. Regarding the grounds for the present rejection, the prior final Office Action asserts that the pending claims were obvious in view of a combination of U.S. Patent No.

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6,629,546 to Eidsmore et al. ("Eidsmore") and U.S. Patent No. 6,651,871 to Ohmi et al. ("the '871 patent"). The prior final Office Action offers only conclusory assertions concerning the motivation to combine the references. Specifically, the prior final Office Action states that "[i]t is believed that Ohmi et al provide a nexus which offers a motivation to make the proposed combination, and that it is obvious to use the well known integral blocks for part of the gas stick flow path with the bridge fittings of Eidsmore et al for the transverse flow paths." Office Action at page 3 (emphasis added). As is seen by the preceding, the prior final Office Action does not provide any factual support for the alleged motivation.

13. Applicant's Amendment in reply to the prior final Office Action (submitted with the RCE) presents facts and argument concerning the non-obviousness of the pending independent claim because the combination of Eidsmore and the '871 patent lacks the required suggestion or motivation. In particular, the remarks included in the Amendment are in large part directed to the lack of any suggestion or motivation to combine the references. The supporting evidence provided in the remarks includes direct quotations from Eidsmore that discredit and teach away from the asserted combination.

14. Although both the prior final Office Action and the first-action final Office Action reject claims 1-15 and 18-34 under 35 U.S.C. §103(a) as being unpatentable over Eidsmore in view of the '871 patent, neither final Office Action provides any specificity regarding where the alleged teachings are found in the '871 patent. Importantly, the first-action final Office Action relies on U.S. Patent No. 5,983,933 to Ohmi et al. ("the '933 patent") for the first time. In particular, the first-action final Office Action indicates "column 7, lines 11-20 of Ohmi et al '933, of record, states that the manifold can be entirely of drilled blocks or entirely of two part blocks, the same inventive concept and structure of the instant claims." Office Action at page 2. Here, the first-action final Office Action does cite with specificity, but to the '933 patent - not the '871 patent. Although not set forth in the first-action final Office Action, the subsequent Advisory Action simply asserts that this statement goes to show the level of skill in the art. Applicants respectfully disagree.

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15. Applicants respectfully assert that the reliance on the '933 patent for the first time in the first-action final Office Action is, at least, implicitly directed to the grounds of the rejection because it is the only portion of the first-action final Office Action that can be reasonably interpreted to provide any alleged support for a suggestion or motivation to combine the references. In particular, the reference to the '933 patent is the only portion of the first-action final Office Action that provides any alleged support in the references for a combination of integral blocks (with internal fluid passages) and "two part blocks." Further, reference to the alleged "nexus" described in the prior final Office Action is no longer relied on by the Examiner. Considering the evidence of a teaching away in the primary reference and the corresponding remarks presented by the Applicants, this new reference to the '933 patent is directed to the grounds of rejection.

16. Further, the first-action final Office Action fails to address the claim amendments at all. Federal Circuit case law makes clear that when an applicant produces rebuttal evidence of adequate weight "the holding of *prima facie* obviousness ... is dissipated." *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir., 1984) Accordingly, "the examiner must consider all of the evidence anew." Id. Applicant respectfully asserts that the amendments to claim 1 included in the Amendment provide a further set of facts (in particular, in combination with the evidence of nonobviousness) that must be considered anew by the examiner. The failure to address the newly amended claims with any specificity demonstrates that the amendments were not considered when the rejection was maintained in the first-action final Office Action. Accordingly, the Applicant was denied the opportunity to respond to any alleged obviousness of the claims as amended. Accordingly, the finality of the rejection is premature.

17. For all of the above reasons, Applicant respectfully requests reconsideration and withdrawal of the finality of the rejection included in the first-action final Office Action.

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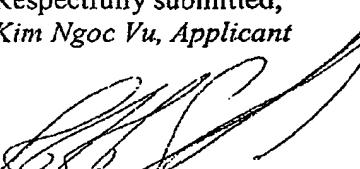
Art Unit: 3753

Should there be any questions, or if this petition does not result in withdrawal of the finality of the current rejection, Applicants urges the Office of Petitions to call Applicants' Representative, Robert V. Donahoe, at telephone no. (617) 395-7044. In addition, please forward all correspondence to Applicant's representative:

Robert V. Donahoe  
LOWRIE, LANDO & ANASTASI, LLP  
Riverfront Office Park  
One Main Street, 11<sup>th</sup> Floor  
Cambridge, MA 02142

Applicant understands that a fee is not required with the filing of this petition, however, should the U.S. Patent Office determine that payment is required, the Commissioner is hereby authorized to charge the fee to Deposit Account No. 50/2762, Ref. No. C1138-700110.

Respectfully submitted,  
*Kim Ngoc Vu, Applicant*

By: 

Robert A. Skrivanek, Jr., Reg. No. 41,316  
Robert V. Donahoe, Reg. No. 46,667  
LOWRIE, LANDO & ANASTASI, LLP  
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Cambridge, Massachusetts 02142  
United States of America  
Telephone: 617-395-7000  
Facsimile: 617-395-7070

Docket No.: C1138-700110  
Date: November 17, 2006

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## ATTACHMENT A



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
 United States Patent and Trademark Office  
 Address: COMMISSIONER FOR PATENTS  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,102	08/26/2003	Kim Ngoc Vu	C1138-700110	6429
7590	03/01/2006			EXAMINER FOX, JOHN C
Robert A. Skrivanek, Jr. Lowrie, Lando & Anastasi, LLP One Main Street Cambridge, MA 02142			ART UNIT 3753	PAPER NUMBER

DATE MAILED: 03/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

RESPONSE  
 DUE: 11/10/06  
 FINAL 9/1/06  
 318KCLPP

NOV 17 2006

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/650,102	VU, KIM NGOC
	Examiner John Fox	Art Unit 3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 08 February 2006.  
 2a) This action is FINAL. 2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-59 is/are pending in the application.  
 4a) Of the above claim(s) 42-59 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-15,18-34 and 37 is/are rejected.  
 7) Claim(s) 16,17,35,36 and 38-41 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

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This action is responsive to the communication filed February 8, 2006.

Claims 42-59 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on August 25, 2005.

This application contains claims 42-59 drawn to an invention nonelected with traverse. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-15 and 18-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eidsmore et al '546, of record, in view of Ohmi et al '871.

Eidsmore et al show a gas stick system with substrates 40 having transverse channels 41 which take manifolds, or bridge fittings in the language of the patent, to make connections between adjacent sticks. In the embodiment of Figure 7, such transverse manifolds include the end fittings labeled 46, which has a port in a plane transverse to the top plane which contains the ports communicating with the components. Eidsmore et al show in Figure 7 a four bolt mounting pattern for the three way and two way valves. Eidsmore et al, though, use bridge fittings for the gas sticks on the inlet side of the MFC. Ohmi et al show another gas stick where the inlet side of the MFC can be either a substrate/manifold or an integral block. It would have been obvious for one of ordinary skill in the art at the time the invention was made to have used an

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integral block instead of the substrate/manifold in Eidsmore et al, as for the inlet side of the MFC, in view of the equivalence taught by Ohmi et al.

Applicant's remarks have been fully considered but are not persuasive. The hypothetical routineer is assumed to be aware of all the pertinent art, and there is a substantial body of related art, virtually all of which is of record.

All of it, however, have many similarities. A manifold, in the broad sense, is provided to accept fluid handling components mounted on the surface thereof. Several parallel gas sticks are provided for process gasses, and some transverse gas flows are provided between the sticks, typically for purge gas.

The issue in this case is the construction of the manifold, again in the broad sense. Many patents show an integral block with drilled passages to connect ports for communicating with the fluid handling components. Many others use a block with a channel which accepts a bridge fitting. Both constructions provide ports in a common plane. Both constructions are well known in making the flow paths needed for the flow along the gas stick direction. Eidsmore et al teach the second construction for making the transverse gas flows, and also use the second construction for making the gas stick flow paths. Figure 2 of Ohmi et al is an unambiguous view of both types of constructions for making the gas stick flow paths. It is believed that Ohmi et al provide a nexus which offers a motivation to make the proposed combination, and that it is obvious to use the well known integral blocks for part of the gas stick flow path with the bridge fittings of Eidsmore et al for the transverse flow paths.

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Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eidsmore et al in view of Ohmi et al as applied to claim 1 above, and further in view of Symington.

Eidsmore et al, as modified, teach the claimed device except for testing for leakage. Symington teaches a gas stick apparatus including a base plate with means to test the apparatus for a gas leak. It would have been obvious for one of ordinary skill in the art at the time the invention was made to have used such a base plate with the device of Eidsmore et al, as modified, to provide for leak testing therein.

Claims 16-17, 35-36, and 38-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Application/Control Number: 10/650,102  
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Fox whose telephone number is 571-272-4912. The examiner can normally be reached on Increased Flextime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keasel Eric can be reached on 571-272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
John Fox  
Primary Examiner  
Art Unit 3753

## ATTACHMENT B

RECEIVED  
CENTRAL FAX CENTER

NOV 17 2006

Serial No.: 10/650,102

- 1 -

Art Unit: 3753

Docket No.: C1138-700110

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Kim Ngoc Vu  
Serial No: 10/650,102  
Confirmation No: 6429  
Filed: August 26, 2003  
For: MODULAR SUBSTRATE GAS PANEL HAVING  
MANIFOLD CONNECTIONS IN A COMMON PLANE

Examiner: Fox, John C.  
Art Unit: 3753

---

**CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8(a)**

The undersigned hereby certifies that this document is being placed in the United States mail with first-class postage attached, addressed to Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the 1<sup>st</sup> day of June, 2006.

  
Sharon R. Lloyd

---

Mail Stop RCE  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**AMENDMENT**

Sir:

In response to the Office Action mailed March 1, 2006, please amend the above-identified application as follows. Changes to the Claims are shown by strike through (for deleted matter) and underlining (for added matter).

**Amendments to the Claims** are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 12 of this paper.

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Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A system for enabling a distribution of fluids, comprising:

a substrate having a substrate body that includes a first substrate port and a second substrate port formed in a first surface and a first fluid passageway formed within the substrate body that extends in a first direction and fluidly connects the first substrate port to the second substrate port; and

a manifold having a manifold body that includes a first manifold port formed in a first surface, a second manifold port formed in a second surface that is transverse to the first surface, and a fluid passageway formed within the manifold body that fluidly connects the first manifold port to the second manifold port;

wherein the substrate further includes a channel formed in the first surface of the substrate body that extends in a second direction, the channel being adapted to position the manifold within the channel so that the first surface of the substrate body and the first surface of the manifold body are aligned in a common plane.

2. (Original) The system of claim 1, wherein the first substrate port is adapted to receive a first fluid component and the second substrate port is adapted to receive a second fluid component that is distinct from the first fluid component.

3. (Original) The system of claim 2, wherein the first and second substrate ports are disposed on a first side of the channel, and wherein the substrate body further includes a plurality of mounting apertures formed in the first surface of the substrate body, the plurality of mounting apertures including at least one first mounting aperture disposed on the first side

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of the channel and at least one second mounting aperture disposed on a second side of the channel, the plurality of mounting apertures being arranged to mount the second fluid component in sealing engagement with the second substrate port and the first manifold port.

4. (Original) The system of claim 1, wherein the first and second substrate ports are disposed on a first side of the channel, the substrate body further including:

a third substrate port and a fourth substrate port formed in the first surface of the substrate body and disposed on a second side of the channel; and

a second fluid passageway extending in the first direction that fluidly connects the third substrate port to the fourth substrate port.

5. (Original) The system of claim 4, wherein the substrate body further includes a plurality of mounting apertures formed in the first surface of the substrate body, the plurality of mounting apertures including at least one first mounting aperture disposed on the first side of the channel and at least one second mounting aperture disposed on the second side of the channel, the plurality of mounting apertures being arranged to mount a fluid component in sealing engagement with the second and third substrate ports and the first manifold port.

6. (Original) The system of claim 5, wherein the plurality of mounting apertures includes no more than four mounting apertures, the four mounting apertures including two mounting apertures disposed on the first side of the channel and two mounting apertures disposed on the second side of the channel.

7. (Original) The system of claim 5, wherein at least one of the channel and the manifold body includes means for aligning the first manifold port with the second and third substrate ports.

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8. (Original) The system of claim 4, wherein the first substrate port is adapted to receive a first fluid component and the second substrate port is adapted to receive a second fluid component that is distinct from the first fluid component.

9. (Original) The system of claim 8, wherein the third substrate port is adapted to receive the second fluid component and the fourth substrate port is adapted to receive a third fluid component that is distinct from the first and second fluid components.

10. (Original) The system of claim 9, wherein the substrate body further includes a plurality of mounting apertures formed in the first surface of the substrate body, the plurality of mounting apertures including at least one first mounting aperture disposed on the first side of the channel and at least one second mounting aperture disposed on the second side of the channel, the plurality of mounting apertures being arranged to mount the second fluid component in sealing engagement with the second and third substrate ports and the first manifold port.

11. (Original) The system of claim 10, wherein the plurality of mounting apertures includes no more than four mounting apertures, the four mounting apertures including two mounting apertures disposed on the first side of the channel and two mounting apertures disposed on the second side of the channel.

12. (Original) The system of claim 10, wherein the substrate body further includes: a fifth substrate port formed in the first surface of the substrate body and disposed on the first side of the channel;

a sixth substrate port disposed on the first side of the channel and formed in a second surface of the substrate body that is transverse to the first surface; and

a third fluid passageway extending in the first direction that fluidly connects the fifth substrate port to the sixth substrate port.

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13. (Original) The system of claim 12, wherein the first fluid component comprises a two port valve that is fluidly connected to the first and fifth substrate ports.

14. (Original) The system of claim 13, wherein the second fluid component comprises a three port valve that is fluidly connected to the second and third substrate ports and the first manifold port.

15. (Original) The system of claim 14, wherein the second direction is perpendicular to the first direction.

16. (Original) The system of claim 1, wherein the channel includes a pair of sidewalls and a base, and wherein the base of the channel includes an aperture through which a rigid member can be inserted to remove the manifold from the channel.

17. (Original) The system of claim 16, wherein the aperture is threaded and is adapted to receive a threaded rigid member to remove the manifold from the channel.

18. (Original) The system of claim 1, wherein the substrate is a first substrate, the system further comprising:

a second substrate having a second substrate body that includes a first substrate port and a second substrate port formed in a first surface of the second substrate body and a first fluid passageway that extends in the first direction and fluidly connects the first and second substrate ports of the second substrate;

wherein the second substrate further includes a channel formed in the first surface of the second substrate body that extends in the second direction and is adapted to position the manifold so that the first surface of the second substrate body and the first surface of the manifold body are aligned in the common plane.

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19. (Original) The system of claim 18, wherein the manifold includes a third manifold port formed in the first surface of the manifold body that is fluidly connected to the fluid passageway of the manifold.

20. (Original) The system of claim 19, wherein the channel in the first substrate is aligned, along the second direction, with the channel in the second substrate.

21. (Original) The system of claim 20, wherein:

the first and second substrate ports of the first substrate are disposed on a first side of the channel in the first substrate;

the first substrate body further includes a plurality of mounting apertures formed in the first surface of the first substrate body, the plurality of mounting apertures including at least one first mounting aperture disposed on the first side of the channel in the first substrate and at least one second mounting aperture disposed on a second side of the channel in the first substrate, the plurality of mounting apertures being arranged to mount a first fluid component in sealing engagement with the second substrate port of the first substrate and the first manifold port;

the first and second substrate ports of the second substrate are disposed on a first side of the channel in the second substrate; and

the second substrate body further includes a plurality of mounting apertures formed in the first surface of the second substrate body, the plurality of mounting apertures including at least one first mounting aperture disposed on the first side of the channel in the second substrate and at least one second mounting aperture disposed on a second side of the channel in the second substrate, the plurality of mounting apertures being arranged to mount a second fluid component in sealing engagement with the second substrate port of the second substrate and the third manifold port.

22. (Original) The system of claim 1, wherein the substrate is a first substrate and the manifold is a first manifold, the system further comprising:

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a second substrate having a second substrate body that includes a first substrate port and a second substrate port formed in a first surface of the second substrate body and a first fluid passageway that extends in the first direction and fluidly connects the first and second substrate ports of the second substrate;

a second manifold having a second manifold body that includes a first manifold port formed in a first surface of the second manifold body, a second manifold port formed in a second surface of the second manifold body that is transverse to the first surface of the second manifold body, and a fluid passageway that fluidly connects the first and second manifold ports of the second manifold;

wherein the second substrate further includes a channel formed in the first surface of the second substrate body that extends in the second direction and is adapted to position the second manifold so that the first surface of the second substrate body and the first surface of the second manifold body are aligned in the common plane.

23. (Original) The system of claim 22, wherein the first fluid passageway of the first substrate is aligned, along the first direction, with the first fluid passageway of the second substrate.

24. (Original) The system of claim 22, wherein the first and second substrate ports of the first substrate are disposed on a first side of the channel in the first substrate, the first substrate further including:

a third substrate port and a fourth substrate port formed in the first surface of the first substrate body and disposed on a second side of the channel; and

a second fluid passageway extending in the first direction that fluidly connects the third substrate port to the fourth substrate port of the first substrate.

25. (Original) The system of claim 24, wherein the second substrate port of the first substrate is adapted to receive a first fluid component and the fourth substrate port of the

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first substrate is adapted to receive a second fluid component that is distinct from the first fluid component.

26. (Original) The system of claim 25, wherein the first substrate body further includes a first plurality of mounting apertures formed in the first surface of the first substrate body, the first plurality of mounting apertures including at least one first mounting aperture disposed on the first side of the channel in the first substrate and at least one second mounting aperture disposed on a second side of the channel in the first substrate, the first plurality of mounting apertures being arranged to mount the first fluid component in sealing engagement with the second and third substrate ports of the first substrate and the first manifold port of the first manifold.

27. (Original) The system of claim 26, wherein the first plurality of mounting apertures includes no more than four mounting apertures, the four mounting apertures including two mounting apertures disposed on the first side of the channel and two mounting apertures disposed on the second side of the channel.

28. (Original) The system of claim 26, wherein:  
the first substrate body further includes a second plurality of mounting apertures formed in the first surface of the first substrate body and disposed on the second side of the channel in the first substrate, the second plurality of mounting apertures being arranged to mount the second fluid component in sealing engagement with the fourth substrate port of the first substrate; and

the second substrate body further includes a third plurality of mounting apertures formed in the first surface of the second substrate body, the third plurality of mounting apertures being arranged to mount the second fluid component in sealing engagement with the first substrate port of the second substrate.

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29. (Original) The system of claim 28, wherein the first fluid component comprises a three port valve, and wherein the second fluid component comprises a mass flow controller.

30. (Original) The system of claim 22, further comprising:  
a third substrate having a third substrate body that includes a first substrate port and a second substrate port formed in a first surface of the third substrate body and a first fluid passageway that extends in the first direction and fluidly connects the first and second substrate ports of the third substrate;

wherein the third substrate further includes a channel formed in the first surface of the third substrate body that extends in the second direction and is adapted to position the first manifold so that the first surface of the third substrate body and the first surface of the first manifold body are aligned in the common plane.

31. (Original) The system of claim 30, further comprising:  
a fourth substrate having a fourth substrate body that includes a first substrate port and a second substrate port formed in a first surface of the fourth substrate body and a first fluid passageway that extends in the first direction and fluidly connects the first and second substrate ports of the fourth substrate;

wherein the fourth substrate further includes a channel formed in the first surface of the fourth substrate body that extends in the second direction and is adapted to position the second manifold so that the first surface of the fourth substrate body and the first surface of the second manifold body are aligned in the common plane.

32. (Original) The system of claim 31, wherein the second direction is perpendicular to the first direction.

33. (Original) The system of claim 1, wherein the second direction is perpendicular to the first direction.

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34. (Original) The system of claim 1, wherein at least one of the channel and the manifold body includes means for aligning the first manifold port with the second substrate port.

35. (Original) The system of claim 1, wherein the channel includes a pair of sidewalls and a base, wherein at least one sidewall of the pair of sidewalls includes at least one first groove, and wherein the manifold includes at least one second groove, the system further comprising:

at least one pin to align the first and second grooves so that the first manifold port is aligned with the second substrate port.

36. (Original) The system of claim 35, wherein the at least one pin has a length that when inserted into the first and second grooves, does not extend above the common plane.

37. (Original) The system of claim 1, wherein at least one of the first and second substrate ports includes means for detecting whether a leak free seal is achieved.

38. (Original) The system of claim 1, wherein the channel includes a pair of sidewalls and a base, wherein at least one sidewall of the pair of sidewalls includes at least one first recess extending into the base and having a first edge, and wherein the manifold includes at least one second recess terminating in a second edge that is complementary to the at least one first recess, the system further comprising:

at least one fastener to engage the first and second edges.

39. (Original) The system of claim 38, wherein the fastener does not extend above the common plane when engaged with the first and second edges.

40. (Original) The system of claim 1, wherein one of the manifold body and the channel includes a pair of alignment apertures having a shape, and the other of the manifold

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body and the channel includes a pair of alignment posts having a shape that is complementary to the pair of alignment apertures, a depth of the respective apertures being greater than a height of the respective alignment posts.

41. (Previously Presented) The system of claim 40, wherein the pair of alignment apertures and the pair of alignment posts are constructed and arranged such that when mated, the first manifold port is aligned in the first direction with the second substrate port.

Claims 42-88 (Canceled)

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REMARKS

Claims 1-59 were previously pending in this application. By this amendment, Applicant is canceling claims 42-59, without prejudice or disclaimer, as a result of a Restriction Requirement. Claim 1 is amended herein. No new claims have been added. As a result claims 1-41 are pending for examination with claim 1 being the sole independent claim. No new matter has been added.

Claim Amendments

Claim 1 is amended herein to recite that the substrate includes a first fluid passageway that is "formed within the substrate body," that the manifold includes a fluid passageway "formed within the manifold body" and that the substrate includes a channel "the channel being adapted to position the manifold within the channel."

Rejections Under 35 U.S.C. §103

The Office Action rejects claims 1-15 and 18-34 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,629,546 to Eidsmore et al. (hereinafter "Eidsmore") in view of U.S. Patent No. 6,615,871 to Ohmi et al. (hereinafter "Ohmi"). Applicants respectfully submit that the combination asserted by the Examiner is improper and fails to establish a *prima facie* case of obviousness because Eidsmore teaches away from a combination in which a substrate includes a fluid passageway formed within the substrate body.

The Office Action asserts that Ohmi teaches an "equivalence" between an "integral block" and a "substrate/manifold" and further asserts that Eidsmore teaches the use of a block to accept a bridge fitting while Ohmi describes the use of bridge fittings and a separate use of blocks with drilled passages. (Office Action at page 3.) The Office Action also offers that there are "many patents" concerning integral blocks with drilled passages and "many others" concerning blocks with channels. *Id.*

Applicants respectfully assert that the applicable legal standard of obviousness under 35 U.S.C. §103(a) is not whether there is a degree of "equivalence" between a manifold and an integral block with internal fluid passageways, but as an initial matter, whether there is some suggestion or motivation to combine the teachings of the prior art to produce the claimed invention. (M.P.E.P. §2143.01) In particular, whether there is any such suggestion or

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motivation in view of the teachings of the references that are being combined. Applicants assert that there is not.

Eidsmore expressly describes the disadvantage of employing a substrate body with a fluid passageway formed within it and describes that "the present invention" of Eidsmore reduces the volume of expensive material "as compared to the conventional ... blocks," i.e., reduces the volume of expensive material when compared with blocks that include an internal fluid passageway. (Col. 1, lines 53-59 and Col. 5, lines 35-54.) As a result, Eidsmore avoids the use of internal fluid passageways in a substrate because "prior art modular component blocks use a large volume of expensive material" while "the present invention [of Eidsmore] provides a gas flow passage that is defined by a bridge fitting 50 which has a substantially reduced volume of expensive material ... this results in a more economic gas path manifold which is cheaper and easier to make than the prior art component blocks." (Col. 5, lines 47-54.) Indeed, the entire disclosure of Eidsmore is directed to manifold assemblies designed to conduct process fluid through manifold bridges instead of through fluid passageways formed in the body of the substrate.

Because Eidsmore discredits and expressly teaches away from the use of internal fluid passageways in a substrate, the combination proposed in the Office Action is improper and the Office Action fails to present a *prima facie* case of obviousness in view of claim 1 as amended. The potential availability of various approaches and their alleged "equivalence" do not provide a suggestion or motivation to combine the cited references to produce the claimed invention because Eidsmore expressly teaches away from the asserted combination. (M.P.E.P. §2143.01, "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.") Similarly, in view of the express language of Eidsmore, the general teachings of the "many patents" referred to in the Office Action also fail to provide the missing suggestion or motivation.

Accordingly, for at least the above reasons, Applicants respectfully request that the rejection of claim 1 under 35 U.S.C. §103(a) be reconsidered and withdrawn. In addition, Applicants respectfully assert that each of the dependent claims 2-15, and 18-34 is also allowable because each depends either directly or indirectly from claim 1 and request that the rejections of claims 2-15 and 18-34 also be reconsidered and withdrawn.

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The Office Action also rejects dependent claim 37 under 35 U.S.C. §103(a) as allegedly being unpatentable over Eidsmore in view of Ohmi as applied to claim 1 and further in view of U.S. Patent No. 6,634,385 to Symington ("Symington"). Claim 37 depends from claim 1. Applicants respectfully assert that claim 37 is allowable because Symington also fails to cure the deficiencies of Eidsmore and Ohmi as applied to claim 1 and request that the rejection of claim 37 also be reconsidered and withdrawn.

Allowable Subject Matter

Claims 16-17, 35-36 and 38-41 are indicated as containing allowable subject matter. Applicants have deferred re-writing claims 16-17, 35-36 and 38-41 in independent form in view of the arguments provided herein regarding the patentability of the independent claim from which they depend.

CONCLUSION

In view of the foregoing amendments and remarks, reconsideration is respectfully requested. This application should now be in condition for allowance; a notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50/2762.

Respectfully submitted,  
*Kim Ngoc Vu, Applicant*

By:   
Robert V. Donahoe, Reg. No. 46,667  
LOWRIE, LANDO & ANASTASI, LLP  
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# ATTACHMENT C

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
 United States Patent and Trademark Office  
 Address: COMMISSIONER FOR PATENTS  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
 www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,102	08/26/2003	Kim Ngoc Vu	C1138-700110	6429
7590	07/06/2006			
Robert A. Skrivanek, Jr. Lowrie, Lando & Anastasi, LLP One Main Street Cambridge, MA 02142			EXAMINER FOX, JOHN C	
			ART UNIT 3753	PAPER NUMBER

DATE MAILED: 07/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

RESPONSE  
 DUE: 10/06/06  
 FINAL: 11/07/06  
 712kef RJP

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/650,102	VU, KIM NGOC
Examiner	Art Unit	
John Fox	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 05 June 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-15, 18-34 and 37 is/are rejected.
- 7) Claim(s) 16, 17, 35, 36 and 38-41 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 2/21/2007
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

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The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-15 and 18-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eidsmore et al '546, of record, in view of Ohmi et al '871.

Eidsmore et al show a gas stick system with substrates 40 having transverse channels 41 which take manifolds, or bridge fittings in the language of the patent, to make connections between adjacent sticks. In the embodiment of Figure 7, such transverse manifolds include the end fittings labeled 46, which has a port in a plane transverse to the top plane which contains the ports communicating with the components. Eidsmore et al show in Figure 7 a four bolt mounting pattern for the three way and two way valves. Eidsmore et al, though, use bridge fittings for the gas sticks on the inlet side of the MFC. Ohmi et al show another gas stick where the inlet side of the MFC can be either a substrate/manifold or an integral block. It would have been obvious for one of ordinary skill in the art at the time the invention was made to have used an integral block instead of the substrate/manifold in Eidsmore et al, as for the inlet side of the MFC, in view of the equivalence taught by Ohmi et al.

Applicant's arguments have been fully considered but they are not persuasive. Mere argument without a factual basis cannot overcome a proper rejection. For example, column 7, lines 11-20 of Ohmi et al '933, of record, states that the manifold can be entirely of drilled blocks or entirely of two part blocks, the same inventive concept and structure of the instant claims.

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Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eidsmore et al in view of Ohmi et al as applied to claim 1 above, and further in view of Symington.

Eidsmore et al, as modified, teach the claimed device except for testing for leakage. Symington teaches a gas stick apparatus including a base plate with means to test the apparatus for a gas leak. It would have been obvious for one of ordinary skill in the art at the time the invention was made to have used such a base plate with the device of Eidsmore et al, as modified, to provide for leak testing therein.

Claims 16-17, 35-36, and 38-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

Application/Control Number: 10/650,102  
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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Fox whose telephone number is 571-272-4912. The examiner can normally be reached on Patent Hoteling Program.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on 571-272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



John Fox  
Primary Examiner  
Art Unit 3753

OIE FFB 9.1 2006 FORM PTO-1449/A and B (Modified)				APPLICATION NO.: 10/650,102	ATTY. DOCKET NO.: C1138-700110
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				FILING DATE: 08/26/03	CONFIRMATION NO.: 6429
				APPLICANT: Kim Ngoc Vu	
Sheet	1	of	1	GROUP ART UNIT: 3753	EXAMINER: Fox, John C.

## U.S. PATENT DOCUMENTS

Examiner's Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication or of issue of Cited Document MM-DD-YYYY
		Number	Kind Code		
EK		6,874,538*	B2	Bennett	04/05/2005

## FOREIGN PATENT DOCUMENTS

Examiner's Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document (not necessary)	Date of Publication of Cited Document MM-DD-YYYY	Translation (Y/N)
		Office/Country	Number	Kind Code			

## OTHER ART - NON PATENT LITERATURE DOCUMENTS

Examiner's Initials	Cite No.	Include name of the author (in CAPITAL LETTERS) title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, relevant page(s), volume-issue number(s), publisher, city and/or country where published.	Translation (Y/N)

EXAMINER

*John Fox*

DATE CONSIDERED

26 JUN 2006

#EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

\*a copy of this reference is not provided either because it was previously cited by or submitted to the office in a prior application, Serial No. 11/232,031, filed 09/21/05, and relied upon for an earlier filing date under 35 U.S.C. 120 (continuation, continuation-in-part, and divisional applications) or because a copy of this reference need not be provided as the reference is a published U.S. Patent or U.S. Patent application and the present application was filed after June 30, 2003.

[NOTE - Must provide a copy of any patent, publication, other information listed, even if it was previously submitted to, or cited by, the U.S. Patent Office in an earlier application, unless the earlier application is identified by the IDS and is relied upon for an earlier filing date under 35 U.S.C. §120, and the copy was provided in the earlier application.]

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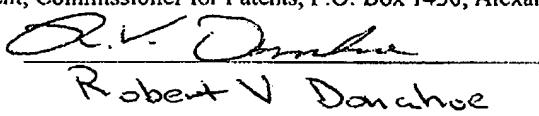
**ATTACHMENT D****RECEIVED  
CENTRAL FAX CENTER****NOV 17 2006****- 1 -****Docket No.: C1138-700110****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Kim Ngoc Vu  
Serial No: 10/650,102  
Confirmation No: 6429  
Filed: August 26, 2003  
For: MODULAR SUBSTRATE GAS PANEL HAVING  
MANIFOLD CONNECTIONS IN A COMMON PLANE

Examiner: Fox, John C.  
Art Unit: 3753

**CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8(a)**

The undersigned hereby certifies that this document is being placed in the United States mail with first-class postage attached, addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the 5<sup>th</sup> day of October, 2006.

  
Robert V. Donahoe

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**RESPONSE**

Sir:

In response to the Office Action mailed July 6, 2006, please enter this Response in the above-identified application as follows.

Remarks begin on page 2 of this paper.

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REMARKS

Claims 1-41 are pending for examination with claim 1 being the sole independent claim. Claims 42-88 were previously canceled as a result of a restriction requirement. A Request for Continued Examination ("RCE") including an amendment to claim 1 was filed in response to the final Office Action, mailed March 1, 2006, which rejected claims 1-15, 18-34 and 37. The instant Office Action was subsequently issued. No claim amendments are included here.

Teleconference

Applicants thank Examiner Fox for his time and courtesy during the teleconference conducted on June 27, 2006, with Robert Skrivanek and the undersigned concerning this application. During the teleconference, the patentability of independent claim 1 was discussed in view of U.S. Patent No. 6,629,546 to Eidsmore et al. ("Eidsmore") and U.S. Patent No. 6,651,871 to Ohni et al. ("the '871 patent"). No agreement was reached. Examiner Fox also referred to col. 7, lines 5-20 of U.S. Patent No. 5,983,933 to Ohni et al. ("the '933 patent") as supporting the combination applied in rejecting the claims.

Attorneys Skrivanek and Donahoe also inquired as to the then-current application status found on the U.S. Patent Office PAIR website which indicated that a final Office Action was set for mailing from the USPTO. In particular, the Attorneys inquired as to the finality of a first action following the filing of the RCE with amendments to the claims. Examiner Fox explained the basis for the final status of the Office Action but indicated that he would consider a request for reconsideration on the merits.

Prior Claim Amendments

The following amendments to claim 1 were included with the filing of the RCE:

a substrate having a substrate body that includes a first substrate port and a second substrate port formed in a first surface and a first fluid passageway formed within the substrate body that extends in a first direction and fluidly connects the first substrate port to the second substrate port; and

a manifold having a manifold body that includes a first manifold port formed in a first surface, a second manifold port formed in a second surface that is transverse to the first surface,

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and a fluid passageway formed within the manifold body that fluidly connects the first manifold port to the second manifold port;

wherein the substrate further includes a channel formed in the first surface of the substrate body that extends in a second direction, the channel being adapted to position the manifold within the channel so that the first surface of the substrate body and the first surface of the manifold body are aligned in a common plane.

#### Finality of the Current Rejection

The Office Action states that the action is made final because "all claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office Action if they had been entered in the application prior to entry under 37 CFR 1.114." (Office Action at page 3.) Applicants respectfully disagree and assert that the claims could not have been rejected on the same grounds because the claim amendments describe aspects that were not previously included in the independent claim. Further, the grounds for the present rejection (Eidsmore '546 in view of Ohmi '933 and Ohmi '871) are different than the grounds of the immediately preceding rejection (Eidsmore '546 in view only of Ohmi '871).

Regarding the claims as amended, claim 1 recites that the first fluid passageway associated with the substrate is "formed within the substrate body," whereas prior to this amendment, claim 1 recited that the first fluid passage was "fluidly connected the first substrate port to the second substrate port" but did not include any further recitation concerning the location of the passageway. Similarly, claim 1 as amended also recites that the fluid passageway associated with the manifold is "formed within the manifold body." In addition, claim 1 as amended also recites that the channel formed in the first surface of the substrate body is "adapted to position the manifold within the channel." Prior to the amendment, claim 1 recited the channel "positioned the manifold so that the first surface of the substrate body and the first surface of the manifold body are aligned in a common plane," but did not include any further recitation concerning the location of the manifold relative to the channel. The Office Action does not appear to address the claim amendments at all.

Regarding the grounds of the rejections, the '933 patent referred to by Examiner Fox in the teleconference and then relied on in the instant Office Action to provide support for the

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asserted combination was not applied in rejecting the claims in the Office Action that preceded the filing of the RCE. Instead, the '933 patent is applied for the first time against the claims in the current rejection. Thus, although the stated basis for the current rejection is Eidsmore '546 in view of Ohmi '871, the asserted rational for the current rejection relies solely on Eidsmore '546 in view of Ohmi '933.

For all of the above reasons, the present rejection is not on the same grounds as the prior rejection and Applicants respectfully request reconsideration and withdrawal of the finality of the rejection.

#### Claim Rejections

Claims 1-15 and 18-34 are currently rejected under 35 U.S.C. §103(a) as being unpatentable over Eidsmore in view of the '871 patent. As previously noted, although the stated basis of rejection is "over Eidsmore et al '546, of record, in view of Ohmi '871" (see Office Action at page 2, lines 3-4) the actual basis appears to be Eidsmore '546 in view of Ohmi '933 (see Office Action at page 2, last paragraph).

As the Examiner recognizes, none of the references alone describe the system recited in claim 1, consequently, the asserted basis for the rejection of claim 1 relies on a combination of references. Applicants respectfully assert that the claim rejections should be reconsidered and withdrawn because no single reference describes the system recited in claim 1, and because the prior art as a whole does not teach or suggest such a system. The impropriety of the current rejection is explained in detail below.

First, Eidsmore describes the use of "bridge fittings" that "transfer fluid between adjacent fluid components." (Col. 5, lines 23-25.) Eidsmore also describes that a "backing plate" may have an "interior groove ... for receiving a plurality of bridge fittings." (Col. 6, lines 6-9.) Further, Eidsmore describes that "the backing plate or channel block 40 ... may further include ... one or more interlinking transverse or branch channels." (Col. 8, lines 45-51.) Nowhere, however, does Eidsmore teach or suggest the desirability of employing "a substrate having ... a first fluid passageway formed within the substrate body that extends in a first direction and fluidly connects the first substrate port to the second substrate port" as recited in claim 1, let alone a combination where such a substrate further includes a "channel adapted to position the manifold within the channel."

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In contrast to suggesting the desirability of the above combination, Eidsmore discredits and discourages the asserted combination by repeatedly describing the disadvantages resulting from an approach that employs "modular blocks" which have "internal flow passageways." (Col. 1, lines 37-63.) For example, in the Background of the Invention, Eidsmore describes that "[o]ne disadvantage to these types of prior art modular systems is that the entire modular block is made of high purity metal. Further, these block components also have higher manufacturing costs due to the complexity of machining multiple passageways of a single block as well as a higher risk of expensive scrap being formed due to the manufacturing complexity" (emphasis added). *Id.* Thus, even if Eidsmore describes structure corresponding to "a substrate" which "includes a channel," Eidsmore expressly teaches away from including any "fluid passageway formed within the substrate body."

Eidsmore teaches that it is advantageous to reduce the volume of expensive material (i.e., semiconductor quality material) "as compared to the conventional ... blocks," i.e., reduce the volume of expensive material when compared with blocks that include an internal fluid passageway. (Col. 1, lines 53-59 and Col. 5, lines 35-54.) As a result, Eidsmore avoids the use of internal fluid passageways in a substrate because "prior art modular component blocks use a large volume of expensive material" while "the present invention [of Eidsmore] provides a gas flow passage that is defined by a bridge fitting 50 which has a substantially reduced volume of expensive material ... this results in a more economic gas path manifold which is cheaper and easier to make than the prior art component blocks." (Col. 5, lines 47-54.) Indeed, the entire disclosure of Eidsmore is directed to manifold assemblies designed to conduct process fluid through manifold bridges instead of through fluid passageways formed in the body of the substrate.

Second, the Office Action refers to the '933 patent which states that, "the couplings 30, 38 may each be in the form of a rectangular parallelepipedal block coupling having a V-shaped channel. Conversely, the couplings 31 and the like may each comprise two blocks and a U-shaped communication channel forming member supported by the blocks," to support an argument that there is equivalence, or interchangeability between a tube-stub structure and internal fluid passageways formed in a solid block.

Thus, the Office Action offers a combination including a first reference that describes a tube-stub structure (e.g., bridge fittings 50) and branch channels 41 but expressly teaches away

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from internal fluid passageways, and a second reference that may indicate that tube stubs (e.g., joints 43, 45 connected with tubular projection 46) and internal fluid passageways are interchangeable but says nothing concerning branch channels or any similar structure. Such a combination is improper because the disclosure of Eidsmore criticizes, discredits and expressly teaches away from the use of any internal fluid passageways in a substrate let alone the use of internal fluid passageways in combination with branch channels. As a result, the required suggestion or motivation to combine the references is missing even if the second reference teaches interchangeability of a tube-stub structure and internal fluid passageways (Applicants assert that it does not). (See MPEP 2143.03.) Accordingly, the Office Action fails to present a *prima facie* case of obviousness.

Further, nowhere does Ohmi describe “a substrate having a substrate body that includes ... a first fluid passageway formed within the substrate body” where the substrate also includes a “channel adapted to position the manifold within the channel” as recited in claim 1. Not only does Ohmi fail to teach or suggest such a structure, the blocks described in Ohmi also do not appear to provide any location suitable for the inclusion of a channel for positioning a manifold in a block that also includes an internal fluid passage. (See Fig. 5 of the ‘871 patent.) In particular, Ohmi fails to provide a location suitable for inclusion of “a channel formed in the first surface of the substrate body that extends in a second direction” where “a first substrate port and a second substrate port [are] formed in [the] first surface,” as recited in claim 1. Thus, assuming *arguendo* that Ohmi does teach interchangeability of tube stubs and internal fluid passageways, Ohmi fails to teach or suggest that those two structures can be employed in the same substrate body.

Accordingly, for at least the above reasons, Applicants respectfully request that the rejection of claim 1 under 35 U.S.C. §103(a) be reconsidered and withdrawn. In addition, Applicants respectfully assert that each of the dependent claims 2-15, and 18-34 is also allowable because each depends either directly or indirectly from claim 1 and request that the rejections of claims 2-15 and 18-34 also be reconsidered and withdrawn.

The Office Action also rejects dependent claim 37 under 35 U.S.C. §103(a) as allegedly being unpatentable over Eidsmore in view of Ohmi as applied to claim 1 and further in view of U.S. Patent No. 6,634,385 to Symington (“Symington”). Claim 37 depends from claim 1. Applicants respectfully assert that claim 37 is allowable because Symington also fails to cure the

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deficiencies of Eidsmore and Ohmi as applied to claim 1 and request that the rejection of claim 37 also be reconsidered and withdrawn.

Allowable Subject Matter

Claims 16-17, 35-36 and 38-41 are indicated as containing allowable subject matter. Applicants have deferred re-writing claims 16-17, 35-36 and 38-41 in independent form in view of the arguments provided herein regarding the patentability of the independent claim from which they depend.

CONCLUSION

In view of the foregoing amendments and remarks, reconsideration is respectfully requested. This application should now be in condition for allowance; a notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50/2762.

Respectfully submitted,  
*Kim Ngoc Vu, Applicant*

By:



Robert V. Donahoe, Reg. No. 46,667  
LOWRIE, LANDO & ANASTASI, LLP  
One Main Street  
Cambridge, Massachusetts 02142  
United States of America  
Telephone: 617-395-7000  
Facsimile: 617-395-7070

Docket No.: C1138-700110  
Date: October 5, 2006

794579.1

## ATTACHMENT E



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
 United States Patent and Trademark Office  
 Address: COMMISSIONER FOR PATENTS  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
 www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,102	08/26/2003	Kim Ngoc Vu	C1138-700110	6429
7590	10/31/2006			EXAMINER
Robert A. Skrivanek, Jr. Lowrie, Lando & Anastasi, LLP One Main Street Cambridge, MA 02142				FOX, JOHN C
			ART UNIT	PAPER NUMBER
				3753

DATE MAILED: 10/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Respon& /Appeal  
 DUE: 11/16/06 (1st ext)  
 FINAL: 11/16/07 (Final)  
 11/26/06 PJP

<b>Advisory Action Before the Filing of an Appeal Brief</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/650,102	VU, KIM NGOC	
<b>Examiner</b>	Art Unit		
John Fox	3753		

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**THE REPLY FILED 10 October 2006 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.**

1.  The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

a)  The period for reply expires 3 months from the mailing date of the final rejection.

b)  The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**NOTICE OF APPEAL**

2.  The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

**AMENDMENTS**

3.  The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because

(a)  They raise new issues that would require further consideration and/or search (see NOTE below);

(b)  They raise the issue of new matter (see NOTE below);

(c)  They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

(d)  They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).

4.  The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5.  Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.

6.  Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7.  For purposes of appeal, the proposed amendment(s): a)  will not be entered, or b)  will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: \_\_\_\_\_.

Claim(s) objected to: \_\_\_\_\_.

Claim(s) rejected: \_\_\_\_\_.

Claim(s) withdrawn from consideration: \_\_\_\_\_.

**AFFIDAVIT OR OTHER EVIDENCE**

8.  The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

9.  The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

10.  The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

**REQUEST FOR RECONSIDERATION/OTHER**

11.  The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
see attached.

12.  Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_.

13.  Other: \_\_\_\_\_.

John Fox  
Primary Examiner  
Art Unit: 3753

Application/Control Number: 10/650,102  
Art Unit: 3753

Page 2

As to the finality of the Office Action, the grounds of rejection are the statute and the references, which are the same in the instant rejection as in the rejection of March 1, 2006, *i. e.* "35 U.S.C. 103(a) as being unpatentable over Eidsmore et al '546, of record, in view of Ohmi et al '871". The reference to another patent to show the level of skill in the art is not considered a new ground of rejection in that it is not required to make the rejection. In other words, the claims would have been properly rejected even if Ohmi '933 did not exist.

As to the merits of the rejection, it is believed that the level of skill in the art is such that the claimed device is suggested by the references.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Fox whose telephone number is 571-272-4912. The examiner can normally be reached on Patent Hoteling Program.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on 571-272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

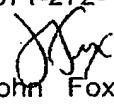
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Page 3

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
John Fox  
Primary Examiner  
Art Unit 3753